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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/329,889	06/10/1999	STEPHANE BOUSSAC	005974/00011	8734

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200 PARK AVENUE
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EXAMINER

THANGAVELU, KANDASAMY

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/329,889

Applicant(s)

BOUSSAC ET AL.

Examiner

Kandasamy Thangavelu

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This communication is in response to the Applicants' Amendment dated August 14, 2002. Claims 1-15, 17-18 and 21-24 were deleted. Claims 25-39 were added. Claims 25-39 of the application are pending.

Response to Arguments

2. Applicants' arguments filed August 14, 2002 have been fully considered. The rejections under 35 U.S.C. 101 are withdrawn in view of the applicants deleting the claims referring to computer simulated object and adding the claims referring to computer model of real world object.

The arguments under 35 U.S.C. 112 first paragraph and under 35 U.S.C. 112 second paragraph are not persuasive, when applied to the newly added claims. Those rejections are retained as explained below. Therefore, this office action is made final.

Drawings

3. This application has been filed with informal drawings that are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

The draft person has objected to the drawings; see a copy of Form PTO-948 sent with a previous office action, for an explanation.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. §112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 29 and 39 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 29 and 39 state “each free neighborhood comprises an area in which motion of the corresponding entity comprises motion on the boundary of the modeled swept volume”. This is new material added in the amendment and not found in the original specification.

6. Claims 25-39 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

- 6.1 These claims are rejected because they use the concept of free neighborhood directly or as claims dependent on independent claims that use the concept of free neighborhood. However, the specification does not contain the definition of the free neighborhood anywhere, making it

impossible to one of ordinary skill in the art to understand what the applicants mean by that term. Such a definition is found only in the amendment filed on February 6, 2002 on Page 13.

6.2 Claims 25, 31 and 35 refer to the edge's free neighborhood comprising a tangent zone comprising a region external to the material of the modeled object and bounded by a planer extension of the polygons that join at said edge. Claim 36 refers to the edge's free neighborhood comprising a tangent zone comprising a region external to the material of the modeled object and bounded by a planer extension of the edges that join at said vertex. The definition used for the edge's free neighborhood in Claim 36 appears to be in error and conflicts with the definition used in Claims 25, 31 and 35. Should this be a vortex's free neighborhood? These definitions conflict with specification Page 2, Para 3, "Free neighborhood is represented by angular portions for various entities forming boundary of the polygon"; specification Page 7, Para 3, "Free neighborhood of an edge is a tangent zone, represented by two portions of a sphere, delimited by planes of adjacent triangles".

6.3 Claims 26 and 32 refer to the polygon's free neighborhood comprising a material zone represented by a half sphere, said half sphere comprising a flat face that is planar with the polygon and the half sphere extending interior to the modeled object. Claim 37 refers to the polygon's free neighborhood comprising a material zone represented by a half circle, said half circle comprising a flat face that is aligned along the edge and the half circle extending interior to the modeled object. The definition used for the polygon's free neighborhood in Claim 37 appears to be in error and conflicts with the definition used in Claims 26 and 32. Should this be

an edge's free neighborhood? These definitions conflict with specification Page 2, Para 3, "Free neighborhood is a material zone, represented by half sphere containing the material of the object and delimited by a triangle"; specification Page 7, Para 2, "Free neighborhood of a triangle is a material zone, represented by half sphere containing the material of the object and delimited by a plane of a triangle".

6.4 The applicants have used inconsistent and incomplete definitions and descriptions of the free neighborhoods for the edges and polygons. They have attempted to explain them by distinguishing them for the three-dimensional and two-dimensional swept volumes in amendment filed on August 14, 2002. However, the descriptions provided in the amendment of August 14, 2002 are not available in the original specification for use by one of ordinary skill in the art.

6.5 The specification states that the free neighborhood of a triangle is a material zone. The amendment of August 14, 2002 states that the free neighborhood of a polygon is a material zone. The question is, is the free neighborhood of an edge a material zone, for the two dimensional case? The concept of the material zone as explained in the specification and the amendment of August 14, 2002, being the free neighborhood and being on the surface of the swept volume is conceptually impossible and appears to be incorrect. The applicants have failed to provide proper explanation in the specification making it impossible for one of ordinary skill in the art to make and use the system.

The claims not rejected directly are rejected because of their dependence on the rejected claims.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 25- 39 of the application are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8.1 These claims are rejected because they use the concept of free neighborhood directly or as claims dependent on independent claims that use the concept of free neighborhood. However, the specification does not contain the definition of the free neighborhood anywhere, making the claims indefinite.

8.2 Claims 25, 31 and 35 refer to constructing a representation of the swept volume from the generated traces of motion of said subset of edges. The applicants' attention is requested to the fact that the swept volume cannot be represented from the traces of the motion of the subset of edges alone; the motion of the polygons joined at the edges is also required. So Claims 25, 31 and 35 are incomplete and indefinite.

8.3 Claim 36 refers to constructing a representation of the swept volume from the generated traces of motion of said subset of vertices. The applicants' attention is requested to the fact that the swept volume cannot be represented from the traces of the motion of the subset of vertices alone; the motion of the edges joined at the vertices is also required. So Claim 36 is incomplete and indefinite.

The claims not rejected directly are rejected because of their dependence on the rejected claims.

Indication of Allowable Subject Matter

9. Subject to rejections listed above, and based on the prior art located to date and made of record, Claims 25-39 do not appear to be taught or rendered obvious, and are indicated as allowable subject matter.

Applicants' Arguments

10. Applicants argue the following:

- (1) the specification is consistent with respect to the matter that is claimed;
- (2) an edge is on the boundary if its motion is within the material zone during the motion of the object to/from the position;
- (3) the triangle is on the boundary at a particular position of the object if its motion is within the material zone during the motion of the object to and from that position;
- (4) free neighborhood of an edge is a material zone interior to the object; and

- (5) free neighborhood of a polygon is a material zone extending interior to the object.

Examiner's reply

11. As per the applicant's arguments, the applicant's attention is requested to the corresponding claim rejections. In addition, the following explanation is provided to further explain the examiner's position.

11.1 In response to the applicant's argument that the specification is consistent with respect to the matter that is claimed, the examiner respectfully disagrees. The applicants' attention to Paragraphs 5, 6 and 6.1-6.4 is requested in this matter.

11.2 In response to the applicant's argument that an edge is on the boundary if its motion is within the material zone during the motion of the object to/from the position, the examiner request~~s~~ the applicants' attention that this information is new and not found in the specification. The concept of the material zone as explained in the specification and the amendment of August 14, 2002, being the free neighborhood and being on the surface of the swept volume is conceptually impossible and appears to be incorrect. The applicants have failed to provide proper explanation in the specification.

11.3 In response to the applicant's argument that the triangle is on the boundary at a particular position of the object if its motion is within the material zone during the motion of the object to and from that position, the examiner request~~s~~ the applicants' attention that this information is new

and not found in the specification. The concept of the material zone as explained in the specification and the amendment of August 14, 2002, being the free neighborhood and being on the surface of the swept volume is conceptually impossible and appears to be incorrect. The applicants have failed to provide proper explanation in the specification.

11.4 In response to the applicant's argument that free neighborhood of an edge is a material zone interior to the object, the examiner requests the applicants' attention that this concept of the material zone as explained in the specification and the amendment of August 14, 2002, being the free neighborhood and being on the surface of the swept volume is conceptually impossible and appears to be incorrect. The applicants have failed to provide proper explanation in the specification.

11.5 In response to the applicant's argument that free neighborhood of a polygon is a material zone extending interior to the object, the examiner requests the applicants' attention that this concept of the material zone as explained in the specification and the amendment of August 14, 2002, being the free neighborhood and being on the surface of the swept volume is conceptually impossible and appears to be incorrect. The applicants have failed to provide proper explanation in the specification.

Conclusion

ACTION IS FINAL

12. Applicant's arguments with respect to claim rejections under 35 USC § 112 First paragraph and 35 USC § 112 Second Paragraph are not persuasive. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 703-305-0043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska, can be reached on (703) 305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-746-7329.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

K. Thangavelu
Art Unit 2123
October 29, 2002

A handwritten signature in black ink, appearing to read "Samuel Broda". The signature is written in a cursive, flowing style.

SAMUEL BRODA, ESQ.
PATENT EXAMINER